tions met, there would probably remain a balance of 250*l.* If, however, the Observatories were carried on till October 1899, there would be a debt of probably 150*l.*"

"By the establishment of these Observatories, and the unique observations made at them, a great experiment has been carried out with signal success. In this work the Council of the Society has been strengthened by having on the Board of the Directors of the Observatories representatives of the Royal Society of London, the Royal Society of Edinburgh, and the Philosophical Society of Glasgow. The experiment has been, as anticipated, a costly one. A sum of no less than 18,150*l.* has been expended on the inquiry, and the sum has been obtained by contributions partly from scientific bodies, but mainly from the public."

"The Scottish Meteorological Society cannot fail to experience great satisfaction from its having been found possible to do so much; indeed, when resolving on making the experiment, and founding the Observatories, the most sanguine expectation could not have predicted the ready and liberal response made to the appeal for the necessary funds."

"With much pleasure the Directors are able to report that in a large sense the objects aimed at have been attained. A long series of hourly observations has been obtained by night and by day without a break over a period of fifteen years, though these included eye or other observations outside in the severe climate of the top of Ben Nevis, forming a set of observations quite unique, nothing similar having as yet been done at any other High-level Observatory in the world."

"The Directors would have been extremely glad if the period of simultaneous hourly observations at the High and Low-level Observatories could have been prolonged for other three years, in order to give ten annual instead of seven annual averages running from January to December, and to furnish a better basis for a minute and careful discussion of the mass of observations now in the possession of the Society, and available for the study of meteorological phenomena."

"In conclusion, the Directors cannot contemplate without sadness the giving up of these two Observatories, both well-equipped and in full working order, especially as they are strongly of opinion that two such Observatories should continue to be carried on as essentials in the observing system of the country."

NOTES.

SEVERAL congresses and meetings of scientific interest are being held as we go to press. The International Congress on Navigation was opened at Brussels on Monday last; there were more than 1000 delegates present. The opening session of the sixty-sixth annual meeting of the British Medical Association was held, under the presidency of Sir T. Grainger Stewart, in Edinburgh on Tuesday, and on the same day the summer meeting of the Institution of Mechanical Engineers began at Derby, under the chairmanship of Mr. S. W. Johnson.

THE Secretaries to the Reception Committee of the International Congress of Zoology are preparing a list of the Cambridge addresses of the members of the Congress who have definitely announced their intention of attending the approaching meeting. They will be glad to receive any information which will help them to make this list as complete as possible. It would be a convenience if those subscribers who are unable to attend the meeting will inform the Secretaries of the fact. Communications should be addressed to Mr. S. F. Harmer or Mr. A. E. Shipley, The Museums, Cambridge.

THE following grants have recently been made by the Physico-Mathematical Section of the Berlin Academy of Sciences:—2000 marks to Prof. Engler, of Berlin, for the continuation of his monograph on East African plants; 1500 marks to Prof. Schultze, of Berlin, for the publication of a work on American Hektinellidæ; 1000 marks to Prof. Brandt, of Kiel, to enable him to accompany the Prince of Monaco in the Prince's investigations in the Atlantic Ocean; 1000 marks to Prof. Burckhardt, of Basle, for investigations on the comparative anatomy of the brain; 1000 marks to Prof. Kohen, of Greifswald, for the continuation of his investigations on meteoric iron; 600 marks to Prof. Graebner, of Berlin, for the continuation of his investigations of the formation of the German heaths; 500 marks to Dr. Kruger, of Charlottenburg, for investigations on urine; 500 marks to Dr. Küster, of Tübingen, for his investigations on the colouring matter of the blood and bile; 500 marks to Dr. Loesner, of Berlin, for the completion of a monograph on the Aquifoliaceæ; 5000 marks to Dr. F. Ristenpart, of Kiel, for preliminary studies for a "Thesaurus positionum stellarum fixarum"; 1000 marks to Dr. Adolph Sauer, of Heidelberg, for the geological investigation of the Aar region; 1000 marks to Dr. Schellwien, of Königsberg, for an investigation of the Palæozoic Eastern Alps.

PROF. VON LEYDEN has been elected a corresponding member of the Paris Académie des Sciences, in the place of Prof. R. Virchow, who has been made an associate.

PROF. FOUQUÉ, of the Collège de France, has been elected a foreign member of the Vienna Academy of Sciences.

THE death is announced of Prof. Suringar, who succeeded Miquel as director of the Leyden Garden and Herbarium in 1857.

WE regret to learn that Mr. van Voorst, for many years a publisher of scientific works, particularly relating to natural history, died on Sunday last, at Clapham, at the ripe age of ninety-four. He retired from business in 1886.

THE monument to Prof. Charcot is to be formally unveiled at the Salpêtrière in Paris on October 23.

A REUTER telegram from Valparaiso states that a violent shock of earthquake, lasting a minute, was experienced on the night of July 23 at Concepcion and Talcahuano, Chile. Many houses fell in consequence, and others were damaged. Telegraphic communication was interrupted, and the electric light wires were broken. A further shock is reported to have taken place at 1.55 p.m. on July 24.

IT is announced in the July issue of the Johns Hopkins University *Circular*, that during the coming year Prof. Simon Newcomb, F.R.S., until lately director of the U.S. *Nautical Almanac*, will resume his superintendence of the work in mathematics and astronomy in the Johns Hopkins University. He will, it is stated, be especially interested in promoting the work of any student who desires to pursue an advanced course of study in celestial mechanics. Near the beginning of the year, Prof. Newcomb hopes to give a short course of lectures on the Encyclopædia of Mathematical Sciences. The *Circular* also reports that the delivery of the second course of lectures, in connection with the George Huntington Williams Memorial Lectureship, upon the principles of geology may be expected during the coming session. The first course of lectures was given, as will be remembered, by Sir Archibald Geikie, F.R.S., during the session of 1896-97.

THE steps recently taken by the Secretary of State for the Colonies, for instituting a system of instruction for medical officers of the Colonial Service in the treatment of tropical diseases, have already been noticed in the press. In further pursuance of this policy, Mr. Chamberlain has invited the Royal Society to co-operate with the Colonial Office in undertaking a thorough investigation into the origin, transmission, and possible prevention of such diseases, and especially of the malarial fevers which are responsible for such a high rate of mortality and disablement among European officers serving in tropical Africa. The Royal Society has accordingly appointed a Committee to deal with the subject, and has voted a money grant, which will be supplemented by a contribution from the Colonial Office funds, for the purposes of the inquiry. Expert investigators will probably be sent out to Africa to study the diseases on the spot, and the Committee will, at the same time, no doubt take note of the work which has been carried out by Surgeon-Major Ross in Calcutta, in reference to the supposed activity of the mosquito in relation to malaria.

A CONGRESS of the Royal Institute of Public Health will be held in Dublin from August 18 to 23, under the presidency of Sir Charles Cameron. The presidential address will be delivered on the opening day, and during the meeting there will be conferences of naval and army medical officers, of medical officers of health, of sanitary inspectors, and of veterinarians. The Section of Preventive Medicine and Vital Statistics will be presided over by Dr. Grimshaw; that of Chemistry and Meteorology by Prof. Moore; and that of Engineering and Building Construction by Mr. Cotton, of the Local Government Board. There will also be an exhibition of sanitary appliances.

AMONG the subjects proposed for discussion at the forthcoming Congress of the Sanitary Institute, to be held at Birmingham, are: Antiseptics in food; prevention of tuberculosis in relation to meat and milk supply; central cooking stations; bacteriological and clinical diagnosis in relation to the notifiable infectious diseases; prevention of measles in reference to school attendance; the soil in relation to typhoid; vital statistics; dwellings of the working classes; Birmingham water scheme; water supply for rural districts, and the means of protecting it from contamination; the qualities of sewage as affecting the method of disposal; recent advances in sewage treatment: (*a*) towns, (*b*) country houses; the natural purification of sewage; the flora of sewage; purification of trade effluents and utilisation of factory waste products; ventilation of sewers and drains; construction and ventilation of house drainage; the drainage of buildings possessing no open space; the geology of the Midlands in relation to water supply; female occupations in relation to health; the hygiene of infancy; the waste of infant life; village nursing of infectious disease; influence of women in regard to household sanitation; woman's share in sanitary administration; hygiene of dress; teaching of sanitation in elementary schools.

THE Yorkshire Naturalists' Union announce a three days' excursion to Easington, for Spurn and Kilnsea, from July 30 to August 1.

IT is expected that the German Tiefsee Expedition will start from Hamburg at the beginning of August. The steamer *Valdivia* is being fitted out with all the necessary appliances.

A DEPARTMENT for the treatment of hydrophobia by Pasteur's method, and for scientific research on the subject of hydrophobia, has, says the *British Medical Journal*, just been opened in the Berlin Institute for Infectious Diseases (Koch Institute). This establishment is the first of its kind in Germany. Apparently, rabies is becoming more frequent in that country. In spite of the stringent legislation on muzzling, five persons died of hydrophobia in Prussia during the year 1897.

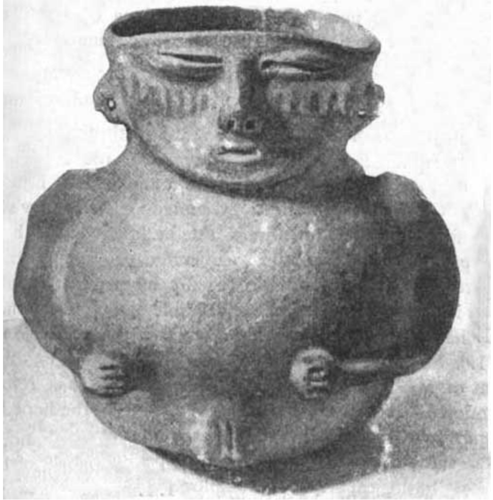
MR. ALEXANDER WHYTE has been appointed, by the Secretary of State for Foreign Affairs, curator of the Botanic Garden, Uganda, which is about to be established for the better examination and development of the agricultural resources of the Protectorate. It will be remembered that Mr. Whyte started a similar enterprise in British Central Africa, in which he was, from 1891–97, head of the Scientific Department.

THE Göttingen Academy of Sciences is reported to have received from the Emperor of Germany's special fund 5000*l.* for gravity determinations in East Africa.

IN a lecture recently delivered at Copenhagen, Prof. la Cour communicated some of the results of the numerous State-aided experiments and tests in connection with the utilisation of the wind's power, which have been carried on by himself over a number of years. After speaking on the historical side of the question, the lecturer referred to the construction of a windmill, and pointed out the fallacy of the opinion that the greatest effect was obtained by horizontally moving wings. Reference was made to the various ways in which the problem of turning the mill according to the wind had been solved, and the lecturer then dealt with the construction of the wings. The question of the effect of the wind's pressure upon a flat surface is a complicated one, but it has been demonstrated that the suction on the lee side is a very important factor. Prof. la Cour had in his experiments measured the effect of an artificial wind upon various models at different speeds, and these experiments pointed to the correctness of some of the ordinarily accepted rules in the construction of windmills; as, for instance, the number of wings. A mill with sixteen wings had only 1⅓ times as much power as one with four wings. In measuring the percentage of the power of the wind striking the wings, he had arrived at the somewhat startling result of 143·7 per cent. This unlooked-for conclusion was owing to the above-mentioned suction on the lee side of the wind passing between the wings. That the wings should not be plane, but have a bent or a concave shape, was an old-established truism; and the shape of the wings has in reality much influence upon the suction caused more especially by the wind, which just passes the edges of the wing. In measuring the percentage of the wind-power utilised, the wind passing between the wings was taken into account, and instead of 143·7 per cent. the result was 21 per cent. The absolutely best shape for wings has, however, not yet been ascertained. The most important practical point in connection with windmills is the solution of the problem, how best to neutralise the inconveniences caused by the irregularity of the wind. Prof. la Cour has for this purpose constructed an original regulator, called the Kratostate, by means of which a windmill can be used for working a dynamo.

THE St. Petersburg Society of Naturalists has lately opened a fresh-water biological station at Lake Bologoye, on the Valdai plateau, near to a railway junction of the same name. The station was opened after only the sum of 120*l.* had been subscribed, chiefly by M. Voronin, "who made also the gift of three microscopes, a rich algologic library, and a flag." A house on the shores of the lake, and surrounded by a garden, was rented, and the station was well provided with scientific instruments, boats, &c. No fees for housing and work at the station are paid, while the boarding, which is excellent, having been organised on co-operative principles, costs, washing included, only 17 roubles (1*l.* 14*s.*) per month to each visitor. The lake is very shallow, having a uniform depth of 5 metres, A narrow isthmus separates it from Lake Glubokoye, 14 metres deep. The aquatic vegetation of the two lakes is very rich, and two interesting plants have already been discovered: the *Najas minor* (*Caulinia fragilis*), characteristic of the Steppe region, and *Najas flexilis* (*Caulina flexilis*), characteristic of Scandinavia and Finland. The neighbourhood of the station has a rich flora—such rarities as *Viola umbrosa*, *Luzula albida*, *Botrychium virginianum*, &c., growing at the doors of the house. Four persons, all botanists, worked at the station last summer. The lake was carefully mapped, its depth was measured in its wide part, and the phyto-plankton was studied by L. A. Ivanoff, who discovered several interesting forms, including the diatoms *Attheya Zachariasi* and *Rhizolenia longiseta*, akin to marine forms.

An interesting article is contributed to the June part of the *American Anthropologist* by Mr. J. W. Fewkes, on "An Ancient Human Effigy Vase from Arizona." The ancient people of southern Arizona manufactured human effigies in clay, the typical forms of which, so far as the author is aware, have not been described. The vase in question was obtained by Mr. Fewkes in the summer of 1897, on behalf of the U.S. National Museum, from a cave at Pima, a settlement in the Pueblo Viejo valley. In his opinion the vase was manufactured by the ancient people of Arizona, probably by a people whose ruined houses are found in the neighbourhood from whence the specimen was obtained. The accompanying illustration, copied from a figure appearing in the *American Anthropologist*, shows the general form of the vase. It is made of coarse material, and has a rough exterior, with patches of calcareous secretions on the surface. The form of the head is shown by a constriction forming the neck, and the eyes, nose, mouth, chin and ears are well represented. No attempt is made to represent the legs, and the arms, it will be noticed, are simply irregular ridges, one on each side of the body. It is supposed that the vase was filled with votive offerings when it was placed in the cave, and that in course of time the contents were washed out. The nature of these offerings may be conjectured from the fragments of shells, turquoises, and other objects strewn about the floor of the cavern.



The *Lancet* prints the following note on Egyptian native remedies for hydrophobia:—"Though there are no medical accounts of rabies in times past, there are plenty of supposed cures which make it appear as if the disease were well known. Papyri contain mention of the dangers of a bite from serpent, crocodile, or dog. Charms were sold in old days to protect from these three, and there is a folk-lore story where the wicked fairy condemned the heir at his birth to be killed by one of these three biting creatures. He destroyed a serpent who attacked him, and he and his favourite hound killed a crocodile, but the master died in consequence of an accidental bite from the dog during the fight. The modern treatment for a person bitten by a presumably mad dog in Upper Egypt is to kill the dog, extract the spinal cord, bruise the cord with pestle and mortar until a paste is made, and then rub the patient's body all over with paste. Sometimes, too, they burn the dog's hair, and apply the ashes to the bite. The Bedouin make the patient eat the raw liver of the dog, and this is done, too, in the Haussa State of the Western Soudan. In Lower Egypt the favourite remedy has been acquired from the Syrians of Mount Lebanon. It is the *Mylabris punctata*, a dark-blue beetle used instead of cantharides, and well known in the south of France and Spain."

It is reported that a drainage scheme for Cairo, based on plans by Sir B. Baker, F.R.S., has been submitted to the Ministry of Public Works on behalf of the Cairo Water Company. The estimated cost is £E.600,000, but this does not include anything for maintenance.

An agricultural department, having for its object the increase, if possible, of the number of the staple products of Zanzibar, has been established in that State. It is under the superintendence of an English horticulturist whose duties are not only to try to improve the methods by which the old-established crops are reared and harvested, but to introduce and cultivate experimentally any other plants which may be likely to thrive in a tropical soil, and which, if successful, would add to the commercial prosperity of the country. Experiments, which already give some promise of good results, have been made with cocoa, kola, vanilla, anatto, and several varieties of rubber, and trials are still being carried on with coffee, candle nut, eucalyptus, and other plants of economic value. Camphor, olives, safflower, and sarsaparilla are said to have failed.

The Rev. M. Dechevrens, S.J., Director of the St. Louis Observatory, Jersey, and formerly Director of the Observatory at Zikawei, China, has communicated to the Academy of the *Nuovi Lincei* an interesting discussion of the variations of air temperature in cyclones, and their principal cause. The investigation is based upon an examination of the weather charts published in the daily *Bulletin International* issued by the Meteorological Office of Paris, and particularly those for January to March 1895. The author finds that the extremes of heat and cold, which are observed respectively in areas of low and high barometric pressure, do not occur at the centres of these systems, but are met with in the neighbourhood of the mean isobars. Also that the descending current of air in an area of high pressure escapes along divergent lines, and that it is principally due to this divergence that the cold usual in anticyclones is observed. Similarly, that the relatively high temperature in areas of low pressure is due to the convergence of the ascending air currents. The paper is accompanied by a number of examples, and is illustrated by diagrams, which materially add to its value.

The twelfth volume (for the year 1896) of the *Analele* of the Meteorological Institute of Roumania, a work of 800 quarto pages, has recently been issued. In addition to the usual meteorological tables it contains ten memoirs, several of which are printed in parallel columns in French and Roumanian. The painstaking director, Dr. S. C. Hepites, writes, among other subjects, on the drought in the Dobrudscha in 1896, on the Roumanian rainfall in 1896, and on the results of twelve years of meteorological observations at Bucharest (1885–1896). He also continues his valuable register of Roumanian earthquakes, from which we learn that, during 1896, eleven shocks were recorded. The majority were of slight intensity, only one (that of March 12) being felt over a large part of the country, and causing small landslips within a limited district.

A RECENT number of the *Aberdeen Journal* prints a communication, received from a correspondent, on the pollution of the river Lossie, by which, it is said, thousands of trout have been poisoned. At the place where the poisoning has occurred the Lossie is at its broadest and deepest, and has been one of the favourite haunts of Elgin anglers. It is fully a mile further up the river from the place where the town's sewage enters, and the water here had continually been used by the cottagers at Scroggiemill and Sheriffmill for domestic uses. In the opinion of many people the pollution is due to the influx of distillery refuse. The same issue of the *Journal* states that a number of distilleries have combined together to offer a premium of 2000*l* to any person devising and handing over to them for their sole use a scheme for the purification of the residual products of distilleries.

PROF. KÜTTNER, of Tübingen, has, says the *Lancet*, been making some interesting experiments with the Röntgen rays at the Constantinople Hospital. In his report, just issued, he says that while the apparatus proved of service when applied with the screen, it was rarely possible to take a satisfactory photograph on account of the difficulty of bringing the patients into the proper position. The former method proved often the only way to ascertain the site of a projectile which had entered the body and had remained there. This was applicable to all parts of the body except the stomach and head. A bullet in the brain, for instance, showed very indistinctly. Prof. Küttner says it is noteworthy that splinters of bullets and of bone which had penetrated into the soft parts of the body could not be distinguished from each other. Also, he says, it was proved that the opinion that deep-lying masses of pus could be located was erroneous. Injuries to the central nervous system, the spinal cord, and the peripheral nerves were solely ascertainable by the aid of the Röntgen rays. It was impossible to do this before. Furthermore, it could be seen whether a bone was totally or only partially severed—a matter of great importance as far as therapeutics are concerned. For shot wounds in the extremities he recommends that a photograph be taken. His conclusion is that the Röntgen rays are of great importance for medical aid in war, but only for fixed hospitals, such as reserve hospitals and those installed in fortresses, while for moving field hospitals their application is very limited.

THE Paris correspondent of the *British Medical Journal* states that the French State engineers have succeeded in giving a formula for making lucifer matches which does not include either white phosphorus or any substance injurious to health. Machinery has also been invented which will contribute to the health and safety of those engaged in match manufacture. The machinery has been tested, and, after a few improvements have been made, it will be generally adopted in the Government match factories.

THE July issue of the Kew *Bulletin* states that, in response to an inquiry from the Kew Gardens for specimens of all the plants yielding a milky juice, samples of Fiji rubber have been received and examined. The first samples received proved entirely valueless; but the second, received in March last, were more promising. *Alstonia plumosa* is described as abounding in the forests, and if carefully treated might prove a useful rubber-producing plant; but, judging from the specimen of rubber received, the preparation of the article has almost become a lost art, for the specimen was soft and viscid on the outside, with little or no elasticity, and practically without value. A later specimen, received in June, was not so viscid, but it gradually became hard and inelastic. A sample of rubber from a tree known as "Baka" (*Ficus obliqua*, Forst. f.) was also received, and although not sufficiently coagulated, was regarded as suitable for mixing purposes, and to be worth to-day from 1*s.* to 1*s.* 3*d.* per pound. A substance obtained from the "Ban" tree, possibly a member of the *Sapotaceæ*, but, in the absence of flowers, otherwise indeterminable, was slightly elastic, and might command a sale at 10*d.* to 1*s.* per pound. Other specimens, obtained from the "Wasalili" (*Carruthersia scandens*, Seem.) and the "Malawaci" (*Trophis anthropophagorum*, Seem.), were entirely deficient of elastic properties, and reported to be of no commercial value.

THE *Engineer* gives particulars of two forms of artificial india-rubber—one emanating from France, the other from Germany. Textiloid is the name of the French form. It consists of resinoline and admixtures. The resinoline is said to be obtained by treating oil with three or four times its bulk of metallic carbonates, and then with nitric acid. Then follow saponification, precipitation by means of an acid, and dissolution in alcohol or ether. A hundred parts of resinoline are mixed with twenty of zinc, oxide of manganese, &c., and sixty parts of methylated spirit; after several hours the mass is kneaded for one hour or more, and finally compressed. The German process consists in the oxidation of linseed oil, with the addition of prepared jute refuse, or similar hitherto worthless textile refuse, by which means a substance is produced which possesses many of the qualifications of genuine india-rubber. It is capable of being utilised in many ways, and of being manufactured into various articles hitherto made of india-rubber.

THE Council of the Anthropological Institute has decided to alter the size of the quarterly journal of the Institute. The journal in its present form compares unfavourably in size with several Continental publications, and does not allow sufficient scope for extensive illustrations. At the present time there is no anthropological publication in England capable of meeting these requirements, and it has occasionally happened that papers of much interest, accompanied by valuable photographs and drawings, have been published abroad for want of a suitable medium in London. With the desire of obviating this unsatisfactory state of affairs, the Council of the Institute has resolved to sanction additional expenditure on printing in the hope that the proportionate increase in the interest and utility of the journal will secure for it the sympathy and support of all those interested in anthropological studies throughout the Empire. The attempt will be made in the new series to apportion the available space as evenly as possible between the different branches of study included in the general science of man. Folk-lore is provided for elsewhere, but physical anthropology, prehistory, and ethnology have all claims to a more liberal treatment than they have hitherto been able to obtain. In view of the temporary dislocation of existing arrangements which the proposed change will entail, it has been decided that there shall be no issue of the present series in August, and that the new series shall commence in November with a combined August and November part.

IN a note in the *Rendiconto* of the Naples Academy, Signor A. Costa briefly summarises the various problems opened out by the recently discovered reciprocal action of animal toxins. In November 1892, this writer observed when in Algiers that when the sting of a Tunis scorpion was followed by that of *Scolia interstincta* Kl. in the same finger seventeen hours later, the result was a complete removal of all the symptoms of poisoning, the finger regaining its normal state. The recent discovery by M. C. Phisalix, that the poison of hornets confers immunity against viper bites, now suggests the following questions: (1) Have the poisons of all hymenoptera the power of sterilising? (2) Of what animals are the poisons capable of sterilisation? (3) Does any specific or generic relation exist between the sterilising and sterilisable poisons in virtue of which (*e.g.*) the sting of one particular family of hymenoptera confers immunity against the sting or bite of one particular group of animals?

ALTHOUGH volcanic flames have been seen and described by many writers, their existence has been doubted by others. Special interest thus attaches to the outbursts of flame which occurred on Vesuvius in April last, and which are dealt with in two papers—one by Prof. E. Semmola in the *Rendiconto* of the Naples Academy, the other by Prof. V. Matteucci in the *Atti dei Lincei*. From the former paper it would appear that this rare phenomenon may have been caused by the falling in of a part of the crater wall, and consequent blockage of the orifice, the pent-up gases becoming heated until a chimney was formed through which they escaped in flames. Prof. Matteucci's paper concludes with the following summary of the principal points: (1) The greater part of the aeriform substances evolved from volcanic magma has the power of producing flames. (2) The small flames in the crater of Vesuvius were of longer duration than the large ones; these latter did not last without intermission for more than 19 or less than 15 days, and ultimately became small and quiescent like the others. (3) The complex phenomenon, of which the flames were one of the most interesting features, seems only comparable with that described by Sir Humphry Davy. It has not been reproduced, or, at any rate, has not been noticed on Vesuvius for eighty-four years. (4) The spectrum produced by these flames is continuous, like that observed by Libbey in the incandescent lavas, also with flames, of Kilauea.

PROF. VILLARI, writing in the *Atti dei Lincei*, shows how the shadows of Rontgen rays, produced by different vacuum tubes, can be compared by photography. The shadows in question were produced by a circular leaden disc fixed some little distance in front of the plate, a cross of lead being placed in contact with the plate in order to facilitate comparison of the darknesses of different parts of the shadow. Prof. Villari found, and his illustrations show, that the shadow of a body intercepting the radiations from a focus tube is surrounded by a kind of penumbra several millimetres wide, ending abruptly at the outside and darkening rapidly towards the centre of the umbra. When a Crookes' tube is used, the umbra terminates in a clearly defined edge; near the edge, within the umbra, there is seen a black line or fringe; outside the umbra there is a pale penumbra several millimetres wide, fading away outwards, and followed by a bright ring indicating increased radiation. These two fringes, the dark and the light, resemble those of diffraction. The central umbra seems to gradually darken from the periphery to the centre, probably owing to deflection of the rays into the shadow produced by the opaque intercepting body.

A BRIEF memoir on the geology of the country around Bournemouth, by Mr. Clement Reid, has just been issued by the Geological Survey, in explanation of the new series map, Sheet 329. The main points of geological interest are described, including the pipe-clays of Poole, the plant-beds in the Bournemouth cliffs, and the richly fossiliferous clays and sands of Barton. The price of this little memoir is 4*d.*, and it is illustrated by figures of some of the characteristic fossils found in the neighbourhood of Bournemouth.

IT is announced that the Trustees of the British Museum are about to issue a facsimile of the famous Rhind mathematical papyrus, which deals with such subjects as the elements of geometry and the theory of fractions. The work was prepared for publication several years ago by the late Dr. Samuel Birch, but has since been revised, and a special introduction to it has been written by Dr. Budge.

A FLORA of the Ardennes, by M. A. Callay, is about to be brought out under the auspices of the Society of Natural History of the Ardennes. It will be published at Charleville by the Society.

THE fossil and recent genera of Eurasian *Dreissensidæ* have been figured by M. N. Andrusov in a series of twenty phototype plates ("Travaux de la Soc. des Naturalistes de St. Petersbourg," vol. xxv.). The genera include *Congeria Dreissensia* and *Dreissensiomya.*

THE U.S. Department of Agriculture has issued a *Bulletin* (No. 16) on American ginseng, its commercial history, production, and cultivation, by Mr. Geo. V. Nash. The plant so called is *Panax quinquefolium*, belonging to the Araliaceæ. At one time in great repute as a sovereign remedy for constitutional weakness, &c., the medicinal use of ginseng is now abandoned except as a demulcent.

A NEW edition of Mr. H. G. Wells's "Text-book of Zoology" has been published by the University Correspondence College Press. The work is more particularly intended for students preparing for examinations of the University of London, and as such it has met with success. The new edition follows the plan and method of the original volume, which appeared about five years ago, but a large part of the text has been rewritten by Mr. A. M. Davies, whose name now appears on the title-page as joint author with Mr. Wells. The preface states: "Only one chapter in the book remains practically unaltered from the first edition, so that while the credit for the general plan of the work belongs to Mr. H. G. Wells, no responsibility attaches to him for any part of the present book." New diagrams have been inserted, and they are remarkably clear and instructive.

IN vol. iii. No. 4 of the *Records of the Australian Museum*, illustrated descriptions appear, by Mr. W. J. Rainbow and Mr. C. Hedley respectively, of a new Araneiad, from Cooktown, and a new Bivalve, *Lima alata*, from Santa Cruz.

A SPECIAL number of the Middlesex Hospital *Journal*, which has just come to hand, contains, in addition to the usual notes, information respecting the various institutions in connection with the hospital, &c., the beginning of a very interesting account, by Dr. A. Coupland, of "The Story of the Middlesex Hospital." The article is illustrated by several figures of the hospital at different stages of its existence, and a reproduction of a photograph of seventeen members of the staff in 1865. Among the number is to be found Prof. Burdon Sanderson, F.R.S., at that time an assistant physician.

THE additions to the Zoological Society's Gardens during the past week include a Naked-footed Owlet (*Athene noctua*), European, presented by the Hon. Walter Rothschild; a Bridled Wallaby (*Onychogale frenata*) from Australia, two Coquerel's Lemurs (*Cheirogaleus coquereli*) from Madagascar, a Glass Snake (*Ophiosaurus apus*), a Back-marked Snake (*Coluber scalaris*), a —— Snake (*Tropidonotus*, sp. inc.), European, ten Algerian Tortoises (*Testudo ibera*) from the Caucasus, nineteen Saddle-backed Tortoises (*Testudo ephippium*) from the Duncan Islands, Galapagos Group; thirty-three South Albemarle Tortoises (*Testudo vicina*) from the Albemarle Islands, Galapagos Group; four Speckled Terrapins (*Clemmys guttata*), thirty-seven Painted Terrapins (*Chrysemys picta*), two American Box Tortoises (*Cistudo carolina*), a Stink-pot Terrapin (*Cinosternon odoratum*), two Alligator Terrapins (*Chelydra serpentina*) from North America, deposited; a Graceful Ground Dove (*Geopelia cuneata*), two Peaceful Ground Doves (*Geopelia tranquilla*) from Australia, purchased.